

Teacher Note

Directions for Close to 100

Close to 100 can be played as a solitaire game, but in class, two or three students will play together. Each group will need one deck of Numeral Cards and a Close to 100 Score Sheet (Student Sheet 1) for each player.

How to Play

1. For the first round, deal out six cards to each player.
2. Each player uses any four of these cards to make two numbers that, when added, come as close as possible to a total of 100. (See the sample round below.) Wild Cards can be used for any numeral.
3. The player records these two numbers and the total on Student Sheet 1. The player's score for each round is the difference of the sum of the two numbers from 100. The four cards used are then placed in a discard pile.
4. For each successive round, four new cards are dealt to each player, so that all players again have six cards.

The game ends after five rounds. If the deck runs out of cards before the game is over, shuffle the discard pile and continue to deal. At the end of five rounds, players total their scores. The *lowest* score wins.

Sample Game

Round 1

Cesar is dealt these cards:

5 8 6 9 2 7

Annie is dealt these cards:

9 1 5 5 4 7

Cesar makes $58 + 29$, and Annie makes $45 + 57$.

Round 2

Cesar has 6 and 7 left from round 1, and is dealt

3 6 9 2

Annie has 9 and 1 left from round 1, and is dealt

8 2 5 0

Cesar makes $36 + 62$, and Annie makes $98 + 02$.

Note: Both Cesar and Annie could have gotten closer to 100 in round 1, and Cesar could have gotten closer to 100 in round 2. Can you see how?

The game proceeds, and their final scores look like this:

Name	Cesar	Date	3/17
		Student Sheet 1	
Close to 100 Score Sheet			
Game 1			Score
Round 1:	58 + 29 = 87		13
Round 2:	36 + 62 = 98		2
Round 3:	93 + 06 = 99		1
Round 4:	70 + 30 = 100		0
Round 5:	87 + 11 = 98		2
TOTAL SCORE			18

Name	Annie	Date	3/17
		Student Sheet 1	
Close to 100 Score Sheet			
Game 1			Score
Round 1:	45 + 57 = 102		2
Round 2:	98 + 02 = 100		0
Round 3:	62 + 51 = 113		13
Round 4:	47 + 49 = 96		4
Round 5:	85 + 06 = 91		9
TOTAL SCORE			28

Cesar has the lowest score, so he wins.

Scoring Variation: Negative and Positive Integers

Students should be very comfortable with the basic game before trying this variation. Its use is specifically suggested during Choice Time in Investigation 3.

In this variation, the game is scored with negative and positive integers. If a player's total is above 100, the score is recorded as positive. If the total is below 100, the score is negative. For example, a total of 103 is scored as +3 (3 above 100) while a total of 98 is scored as -2 (2 below 100). If using this variation, Cesar's and Annie's score sheets from the sample game would look like this:

Name Cesar Date 3/17
Student Sheet 1

Close to 100 Score Sheet

Game 1		Score
Round 1:	<u>58</u> + <u>29</u> = <u>87</u>	<u>-13</u>
Round 2:	<u>36</u> + <u>62</u> = <u>98</u>	<u>-2</u>
Round 3:	<u>93</u> + <u>06</u> = <u>99</u>	<u>-1</u>
Round 4:	<u>70</u> + <u>30</u> = <u>100</u>	<u>0</u>
Round 5:	<u>87</u> + <u>11</u> = <u>98</u>	<u>-2</u>
TOTAL SCORE		<u>-18</u>

Name Annie Date 3/17
Student Sheet 1

Close to 100 Score Sheet

Game 1		Score
Round 1:	<u>45</u> + <u>57</u> = <u>102</u>	<u>+2</u>
Round 2:	<u>98</u> + <u>02</u> = <u>100</u>	<u>0</u>
Round 3:	<u>62</u> + <u>51</u> = <u>113</u>	<u>+13</u>
Round 4:	<u>47</u> + <u>49</u> = <u>96</u>	<u>-4</u>
Round 5:	<u>85</u> + <u>06</u> = <u>91</u>	<u>-9</u>
TOTAL SCORE		<u>28</u>

The player with the total score closest to zero wins. So, in this case, Annie wins (+2 is 2 away from 0, and -18 is 18 away from zero). Scoring this way changes the strategy for the game. Even though Cesar got many scores very close to 100, he did not compensate for his negative values with some positive ones. Annie had totals farther away from 100, but she balanced off her negative and positive scores more evenly to come out with a total score closer to zero.

The Close to 100 Scoring Variation: Counting Track (p. 91) can help players figure their total scores at the end of five rounds. For example, Annie's scores are +2, 0, +13, -4, and -9. To add these, she would start with a counter on 0 on the counting track, then move forward for positive scores and backward for negative scores—counting forward 2, no change, forward 13, back 4, and back 9. The total score is the last number the counter lands on—in Annie's case, +2.

CLOSE TO 100 SCORING VARIATION: COUNTING TRACK

-23	-24	-25	-26	-27	-28	-29	-30	-31	-32
-22									
-21	-20	-19	-18	-17	-16	-15	-14	-13	-12
									-11
-1	-2	-3	-4	-5	-6	-7	-8	-9	-10
0									
+1	+2	+3	+4	+5	+6	+7	+8	+9	+10
									+11
+21	+20	+19	+18	+17	+16	+15	+14	+13	+12
+22									
+23	+24	+25	+26	+27	+28	+29	+30	+31	+32

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Close to 100 Score Sheet**Game 1****Score**

Round 1: _____ + _____ = _____ _____

Round 2: _____ + _____ = _____ _____

Round 3: _____ + _____ = _____ _____

Round 4: _____ + _____ = _____ _____

Round 5: _____ + _____ = _____ _____

TOTAL SCORE _____

Game 2**Score**

Round 1: _____ + _____ = _____ _____

Round 2: _____ + _____ = _____ _____

Round 3: _____ + _____ = _____ _____

Round 4: _____ + _____ = _____ _____

Round 5: _____ + _____ = _____ _____

TOTAL SCORE _____